

lines are most abundant in the umbonal region, though occasional specimens exhibit them over the entire surface of the disk. The angles formed by the junction of these lines are much broader than the angles so formed in *V. mercenaria notata*.

Excellent figures of *V. mercenaria* var. *notata* are given by DeKay (loc. cit.) pl. 27, fig. 278, and Gould, Invert. Mass. 1870, p. 135, fig. 52.

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#### PLANOGYRA ASTERISCUS (MORSE)

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BY H. BURRINGTON BAKER

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Last summer, I obtained a large series of this peculiar little species near the University of Michigan Biological Station at Douglas Lake, Cheboygan County, Michigan. In this region, *P. asteriscus* is quite common under dead leaves in the strand-line between the water-soaked, *Sphagnum* mats of the arborvitae-spuce bogs and the fringe of low, deciduous trees around their borders. Although it occurs rarely outside of this zone, a very few feet in either direction makes a very remarkable difference in its frequency. Near the shore of Big Stone Bay, Straits of Mackinac (Emmet County), it is also quite common in the damp swales between the low, fixed sanddunes. *P. asteriscus* and *Carychium exile canadense* seem to prefer the deeper layers of the fallen leaves and are seldom found crawling on the surface or in the vicinity of logs. The high, epidermal riblets that characterize the shell of *P. asteriscus* are quite rectilinear in moist (living) specimens, but become wavy when dried.

The anatomy of *P. asteriscus*, which I hope to figure and describe more fully in a later paper, is very similar to that

of *Vallonia*, as described by Steenberg (1918, Vidensk. Medd. Naturh. Förening i Kjöbenhavn 69, fig. 5) or Watson (1920, Proc. Mal. Soc. London 14, figs. 3*b*, 4*d*, 5*c*, pl. 1, fig. 1, and pl. 2, fig. 5). The pallial complex is of the orthurethrous type, although the orthureter is paralleled by a groove which runs posteriad to beyond the apex of the kidney. The prostate is of the short form with digitate lobes. The penis is present in all of the adults examined, while it is usually absent in *Vallonia*. The penial flagellum is externally rather similar to that of *Vallonia*, and consists of three regions: 1) an apical, long-stalked, thin-walled sac, which may be greatly distended by a mass of mucous material; 2) a cylindrical, thick-walled, middle region, with numerous trabeculae internally; and 3) a thin-walled, long-ovoid, basal sac, which contains a large, perforate, verge-like structure. The region of the penis beyond the entrance of its appendix is much shorter than in *Vallonia*, and the penial retractor inserts only at the terminal loop of the epiphallus. The jaw and radula are quite like Morse's account (1864, Jour. Portland Soc. Nat. Hist., p. 24, figs. 52, 53), but the comb-shaped marginal teeth may actually develop as many as 9 cusplets.

Despite the great divergence in conchological characters, I am convinced that *Planogyra* should be placed in the typical subfamily of the Valloniidae. The shell sculpture and texture of *P. asteriscus* are somewhat similar to those in *Acanthinula* and *Zoögenetes*, while the shell form is more like that of *Pyramidula*; probably all of these genera are rather closely related to each other. The Valloniidae should precede the Pupillidae in the Orthurethra.

In a former paper (1927, Proc. Acad. Nat. Sci. Philadelphia 79, p. 233), I tentatively included the Mexican group, *Chanomphalus*, as a subgenus of *Planogyra*. As its type species, *C. pilsbryi*, belongs to the Endodontidae, *Chanomphalus* will have to be regarded as a separate genus. Its distinctive characters will scarcely permit its introduction into either *Radiodiscus* or *Helicodiscus*, which appear to be its nearest relatives.